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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,186	11/05/2001	Yasushi Kohno	TKA0032	5700

7590 07/16/2008  
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EXAMINER
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VALENTI, ANDREA M

ART UNIT	PAPER NUMBER
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3643

MAIL DATE	DELIVERY MODE
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07/16/2008

PAPER

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/007,186  
Filing Date: November 05, 2001  
Appellant(s): KOHNO, YASUSHI

\_\_\_\_\_  
Michael S.Gzybowski  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 04 June 2008 appealing from the Office action mailed 02 November 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief, Agritecno Yazaki Co., Ltd.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

Appeal No. 2004-0035 vacated and remanded to the examiner on 28 September 2004.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

There is a typographical error in claims 4 and 5:

Claim 4, section b, line 2, "plane seed" should be --plant seed--

Claim 5, section b, line 2, "plane seed" should be --plant seed--

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

### **(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

### **(8) Evidence Relied Upon**

5,294,593

Khan

03-1994

K. Ohkawa et al, "Influence of temperature prior to seed ripening and at germination on rosette formation and bolting of *Eustoma grandiflorum*", *Scientia Horticulturae*, Vol. 53, Issue 3, [February 1993] pp. 225-230.

P. Coolbear et al, "An evaluation of the potential of low temperature pre-sowing treatments of tomato seeds as a means of improving germination performance", *Ann. appl. Biol.* (1987), 110, pp. 185-194.

### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Influence of temperature prior to seed ripening and at germination on rosette formation and bolting of Eustoma grandiflorum*, abstract, *Scientia Horticulturae*, Volume

53, Issue 3, February 1993, Pages 225-230, K. Ohkawa et al, 2 pages in view of An Evaluation of the Potential of Low Temperature Pre-sowing Treatments of Tomato Seeds as a Means of Improving Germination Performance, Ann. Appl. Biol. (1987), 110, pg. 185-195 by Coolbear et al and U.S. Patent No. 5,294,593 to Khan.

Regarding Claims 1, 4 and 5, Ohkawa teaches a method of preventing rosette formation of plant seed which tend to suffer from rosette formation during growth by low temperature seed treatments of hydrated seeds at 3-5C for 5 weeks (Ohkawa abstract; *Eustoma grandiflorum*) and inherently prevents defective germination i.e. Ohkawa teaches leaving a plant seed to stand in a highly watery condition at a low temperature for a period of time from several days to inhibit rosette formation in a temperature from 0-15C. Ohkawa is silent on teaching that the plant seed is undergoes drying after immersion in the water and that the immersion and drying are conducted in a dark place.

Coolbear teaches the seed treatment method steps of leaving the plant seed to stand in a highly watery condition at a low temperature in a dark place for a period of time i.e. allowing seeds to imbibe water at 10C in darkness and then drying the seeds (Coolbear Methods, first paragraph) and inherently relative humidity of 100% (Coolbear teaches the seeds are in a covered dish and are continuously kept moist thus the humidity is 100%, Methods line 2-4). Coolbear teaches these steps enhance germination rates and improve uniformity of germination (Coolbear Summary).

The process of exposing seeds to cold temperatures is known in the art as vernalization. By definition, vernalization is the process in which a seed is subjected to a

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period of cold, causing changes that allow germination to occur, a period of cold temperatures required by certain plants before they will produce flowers and mature.

The method steps taught by Coolbear is equivalent to vernilization. Since the seeds are undergoing vernilization the methods prevent both defective germination and inherently prevent rosette formation to some extent.

It would have been obvious to one of ordinary skill in the art to modify the teachings of Ohkawa with the teachings of Coolbear at the time of the invention for the known advantage of preventing defective germination and for storage since it is general knowledge in the art that light and darkness have effects on germination. It would be obvious to one of ordinary skill in the art that if a particular seed is a light germinator it is desirable to treat and store the seed in the dark to prevent premature germination.

Khan teaches that it is old and notoriously well-known to dry hydrated seeds in the dark to prevent a break in dormancy (Khan Col. 3 line 40-49). Khan is cited merely to teaches the general knowledge of one of ordinary skill in the art that drying of a seed should take place in the dark to prevent a break in dormancy. It would have been obvious to one of ordinary skill in the art to modify the teachings of Ohkawa with the teachings of Khan at the time of the invention for preventing loss of dormancy for storing seeds for several months as taught by Khan (Khan Col. 3 line 50-52). These combinations are merely the combining of prior art elements according to known methods to yield predictable results.

### **(10) Response to Argument**

Ohkawa et al was cited merely as support that the steps taught by the prior art of record of Coolbear and Kahn would cause the result claimed by applicant i.e. preventing rosette formation. Applicant's references to preventing/inhibiting rosette formation are merely cited as a result and not as part of the method steps of the claim. Coolbear as modified by Kahn performs all of the claimed steps and it is the examiner's position that these steps will cause the results claimed by applicant. In other words, preventing/inhibiting rosette formation is an intended result/consequence of the claimed steps and not a positive step of the method claims.

Applicant claims the steps of: a) leaving the plant seed to stand in a highly watery condition at a low temperature in a dark place for a period of time from several days to several months to inhibit defective germination and rosette formation of the plant seed, the dark place being sufficiently dark to prevent the plant seed from germinating; and b) drying the plant seed in a dark place being sufficiently dark to prevent the plant seed from germinating, said drying takes place immediately after leaving the plant seed to stand in the highly watery condition at the low temperature in a dark place, wherein in the step a) of leaving the plant seed in a highly watery condition the plant seed is immersed in water at a temperature of from 0 °C to 15 °C.

Coolbear teaches a pre-sowing seed treatment designed to improve germination utilizing the steps of: a) leaving the plant seed to stand in a highly watery condition at a low temperature in a dark place for a period of time; leaving the plant seed in a highly watery condition the plant seed is immersed in water at a temperature of from 0 °C to 15

°C (Coolbear page 186, Methods section “allowing seeds to imbibe distilled water at a constant 10°C in darkness.”) b) drying the plant seed said drying takes place immediately after leaving the plant seed to stand in the highly watery condition at the low temperature in a dark place (Coolbear, page 186, Methods section “On completion of the treatment time, germinated seeds (pregerminants) were removed and the remaining seeds dried back in open Petri dishes at room temperature.”).

Coolbear is silent on the duration of time of treatment from several days to several months and that the drying takes place in the dark.

Kahn teaches that it is known to dry treated seeds in darkness depending on the seed variety to prevent from breaking dormancy. Kahn teaches the general knowledge in the art that seeds are light or dark germinators and it is desirable to dry light germinators in a dark environment so as to control dormancy (Kahn Col. 3 line 40-49). It is the examiner's position that it would have been obvious to one of ordinary skill in the art to modify the teachings of Coolbear with the teachings of Kahn at the time of the invention as a measure to control dormancy for increase storage time. The modification is merely the use of a known technique to improve a similar device in the same way.

Kahn teaches the known methods steps of soaking the seed in a watery condition (Kahn Col. 3 line 11 and line 31) in the dark (Kahn Col. 3 line 24 and line 35) and drying the treated seeds in the dark (Kahn Col. 3 line 40-49). Kahn teaches an additional method of chilling seed in water at 2 to 10°C for 4 to 40 days in the dark (Kahn Col. 4 line 13-20).



Kahn teaches it is known to keep seeds in a chilled condition soaking in water in the dark for several days (Kahn Col. 4 line 15). It would have been obvious to one of ordinary skill in the art to further modify the teachings of Coolbear with the teachings of Kahn at the time of the invention for effective and efficient treatment of the seeds; enough time for the seed to imbibe the desired amount of water; and depending on desired storage time, seed variety, and planting cycle. The modification is merely considered as a measure of "obvious to try"-choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success.

Ohkawa provides further support of the general knowledge of keeping hydrated seeds (Ohkawa abstract "seed treatment of hydrated seeds") at 3 to 10°C for 5 weeks i.e. several days and more than one month (Ohkawa page 226, Experiment 2, line 3 and abstract page 225).

The examiner maintains that a prima facie case of obviousness has been established and the claimed steps are all old and notoriously well-known measures in the art of plant husbandry. The combination of the general knowledge taught by the prior art of record is merely the combinations of prior art elements according to known methods to yield predictable results.

#### **(11) Related Proceeding(s) Appendix**

Copies of the court or Board decision(s) identified in the Related Appeals and Interferences section of this examiner's answer are provided herein.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Andrea M. Valenti/

Primary Examiner, Art Unit 3643

10 July 2008

Conferees:

Andrea M. Valenti /Andrea M. Valenti/

Robert Swiatek /rps/

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